

SERIES CAPACITOR COUPLING MULTIPLEXER FOR  
PROGRAMMABLE LOGIC DEVICES

ABSTRACT OF THE DISCLOSURE

A series capacitor coupling (SCC) structure is controllable to capacitively couple a data input lead of the SCC structure to an output lead of the SCC, or to de-couple the data input lead from the data output lead. An SCC is controlled by a control bit stored in an associated memory cell. A multiplexer is fashioned out of a plurality of such SCC structures such that the edges of a digital signal received on a selected one of a plurality of multiplexer data input leads is coupled through the SCC structures onto an intervening node. The edges of the digital signal on the intervening node are then latched to recreate the incoming digital signal and the latched signal is output onto a multiplexer data output lead. The multiplexer is very fast and has a low leakage current in comparison to conventional transmission gate multiplexers used in programmable logic devices.